

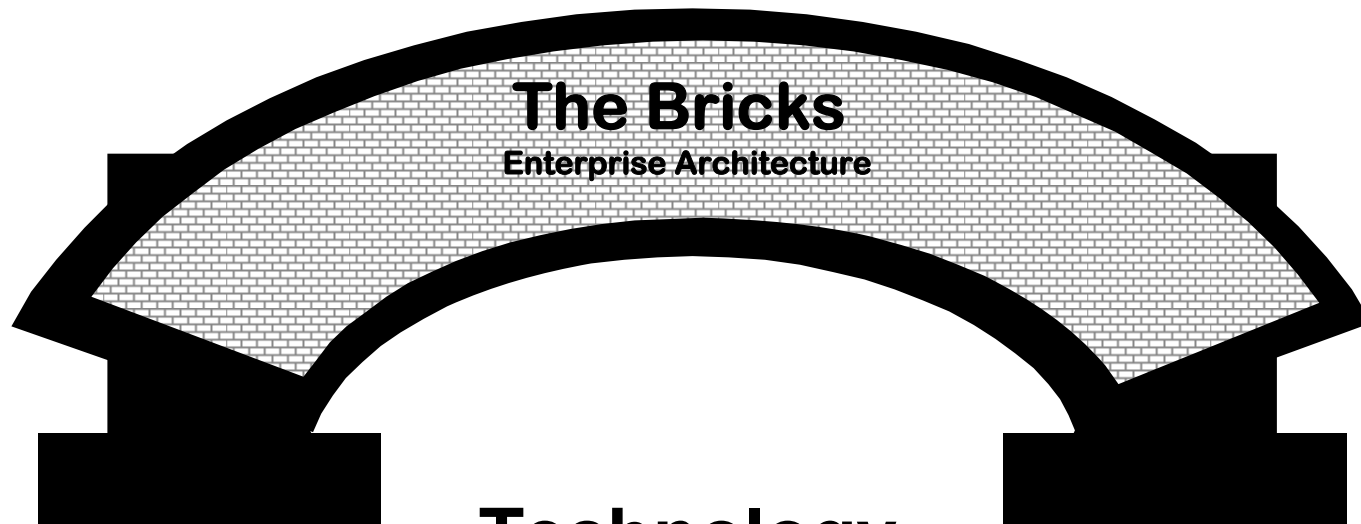


Office of Statewide Health Planning and Development


IT Enterprise Architecture - Revised Bricks

21 February 2006





Technology Infrastructure Bricks

 **Operating
Systems**

Middleware 

 **Database**

**Workgroup
Computing** 

 **Security**

 **Systems
Management** 

 **Network**

**E-Mail/
Messaging** 

 **Application
Development**

 **Document
Management** 

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Computing Infrastructure - Application Development, Third Generation Languages (3GL)

1

Current	2 Years	5 Years
Baseline Environment COBOL II Mainframe COBOL PC C C++	Tactical Deployment <ul style="list-style-type: none"> • Keep an eye on Java and Open Source Languages • COBOL LE – Works with DB2 v8 upgrade • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • Market watch Current Baseline, Tactical, and Emerging Technologies • Market watch Open Source
Retirement	Mainstream C, C++, COBOL II Mainframe	
Containment COBOL PC		Emerging
Implications and Dependencies <ul style="list-style-type: none"> • COBOL is used for certain mainframe apps, with DB2 and VSAM files, TSO environment • A few C++ programs used to manipulate data or perform low-level C/S functions. 		

Computing Infrastructure - Application Development, Fourth Generation Languages (4GL)

2

Current	2 Years	5 Years
Baseline Environment Visual Basic 6.0 Natural SAS (mainframe) PC SAS VC++ VB.NET	Tactical Deployment <ul style="list-style-type: none"> • Research the use of C# • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies • Evaluate F#
Retirement SAS (Mainframe)	Mainstream VB.NET, PC SAS	
Containment Natural, Visual Basic 6.0		Emerging F#, Open Source
Implications and Dependencies <ul style="list-style-type: none"> • Natural used with DB2 on mainframe, TSO environment • SAS data transformation capabilities have been leveraged by developers as 4GL to process data. PC version of SAS also used by end users for analysis of data. 		

Computing Infrastructure - Application Development, Integrated Development Environment (IDE)

3

Current	2 Years	5 Years
Baseline Environment Visual Studio .NET 2003 Visual Studio 6.0	Tactical Deployment <ul style="list-style-type: none"> • Visual Studio .NET 2005, for building new component-based applications and Web Services • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • IDE capabilities of VS .NET consistent with .NET framework • Market watch Current Baseline, Tactical, and Emerging Technologies • Market Watch Open Source Alternatives
Retirement	Mainstream Visual Studio .NET 2003	
Containment Visual Studio 6.0		Emerging Advanced .NET IDE, .NET Web Services
Implications and Dependencies		

Computing Infrastructure - Application Development, Component Model

4

Current	2 Years	5 Years
Baseline Environment	Tactical Deployment <ul style="list-style-type: none"> • Evaluate Common Object Request Broker Architecture (CORBA) and Unified Modeling Language (UML) • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream	
Containment		Emerging
Implications and Dependencies		

Computing Infrastructure - Application Development, Source Code Control, AD Methodology

5.1

Current	2 Years	5 Years
Baseline Environment Source Code Control Visual Source Safe (VSS) <u>AD Methodology</u> Waterfall and Evolutionary	Tactical Deployment <ul style="list-style-type: none"> • <u>SCC</u>:Continue using VSS for source code control in Microsoft environment • <u>Methodology</u>:Evaluate iterative SDLC methodologies, e.g. DSDM • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>SCC</u>:Track Microsoft's products consistent with .NET IDE choices • <u>Methodology</u>: Flexible, multi-path AD methodology consistent with industry standards, e.g. IEEE • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement MS Object Modeler	Mainstream MS VSS, Waterfall and Evolutionary	
Containment		Emerging
Implications and Dependencies.		

Computing Infrastructure - Application Development, Methodologies, Modeling Tools, and Infrastructure

5.2

Current	2 Years	5 Years
Baseline Environment <u>Design</u> Visio <u>Data Modeling</u> CA-Erwin Toad VISIO <u>Traceability</u> Mercury Test Director <u>Testing</u> Mercury Interactive Quick Test	Tactical Deployment <ul style="list-style-type: none"> • <u>Design</u>: Visio from VS .NET has been used to diagram UML; evaluate more robust design tools, e.g. Rational, Visio Enterprise • Evaluate IBM Rational Rose • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Design</u>: .NET-compatible design and modeling tools • <u>Data Modeling</u>: .NET-compatible design and modeling tools • <u>Testing</u>: Robust testing tools that support all phases of system testing • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Visio, CA-ERwin, Mercury Interactive Quick Test/Test Director	
Containment		Emerging
Implications and Dependencies <ul style="list-style-type: none"> • CA ERwin has been used successfully by MIRCal, ALIRTS and DW projects to date 		

Computing Infrastructure - Application Development, Scripting Languages

6

Current	2 Years	5 Years
Baseline Environment <u>Client Side</u> Java Script <u>Server Side</u> VB Script Python	Tactical Deployment <ul style="list-style-type: none"> • Evaluate emerging version • Evaluate Perl, PHP, CGI (Open Source) • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Client Side</u> Use appropriate scripting language(s) consistent with interoperability goals and choice of browser • <u>Server Side</u> Use appropriate server scripting tools based on internet standards • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream VB Script (Server), Java Script (Client)	
Containment		Emerging
Implications and Dependencies		

Computing Infrastructure - Middleware & Integration, Basic Data Access

7

Current	2 Years	5 Years
Baseline Environment <u>Mainframe</u> IBM TSO <u>Database</u> ODBC OLE-DB MS JetEngine ADO.net ADO DAO RDO	Tactical Deployment <ul style="list-style-type: none"> • <u>Distributed DBMS</u>: evaluate next generation of MS-centric data access ODBC, OLE-DB, ADO.NET • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Mainframe</u>: As platform is retired, shift to distributed data access • <u>Distributed</u>: Next-generation, component-based, integrated data access built around .NET framework • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement DAO, RJE	Mainstream RDO, ADO, ODBC, OLE-DB, ADO.NET, MS JetEngine	
Containment TSO		Emerging New ADO .NET
Implications and Dependencies <ul style="list-style-type: none"> • TSO used to submit batch jobs that process and manage data stores and files. • Some concerns that ADO.NET may not perform well enough to handle GIS (spatial) data. 		

Computing Infrastructure - Middleware & Integration, Basic Communication Middleware

8

Current	2 Years	5 Years
Baseline Environment <u>Data Communication</u> XML Business Object Layer (BOL) Data Access Layer (DAL) MS COM+ ActiveX <u>Messaging</u> MS Message Queue	Tactical Deployment <ul style="list-style-type: none"> • Move fully to .NET-centric component model under MS Component Services; evaluate next generation Microsoft Component Services for .NET • <u>RPC</u> MS .NET Remoting for tightly integrated RPC functions • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>MSMQ</u>: MS-centric message queue services consistent with .NET framework and integration middleware choices. • <u>RPC</u>: MS-centric RPC services for tightly integrated communications • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Microsoft Message Queue, XML, MS COM+, BOL, DAL	
Containment		Emerging .NET MS MQ services
Implications and Dependencies		

Computing Infrastructure - Middleware & Integration, Basic Platform Middleware

9

Current	2 Years	5 Years
Baseline Environment <u>Architecture</u> MS .NET Framework	Tactical Deployment <ul style="list-style-type: none"> • OSHPD Customized .net Framework • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • .NET-centric component services and integrated platform middleware components • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream MS .NET Framework	
Containment ActiveX		Emerging NET-centric component
Implications and Dependencies		

Computing Infrastructure - Middleware & Integration, Integration Middleware

10

Current	2 Years	5 Years
Baseline Environment	Tactical Deployment	Strategic Direction
Retirement	Mainstream	
Containment		Emerging
Implications and Dependencies.		

Computing Infrastructure - Data Description Standards

11

Current	2 Years	5 Years
Baseline Environment <u>Data Description</u> XML <u>Standards</u> Data Dictionary Entity Relationship Diagram (ERD)	Tactical Deployment <ul style="list-style-type: none"> • XML family of standards; extend and broaden enterprise use of XML for describing data with external partners (using DOM/SAX or other object models and XML bindings) • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • XML family of standards • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream XML, Data Dictionary, ERD	
Containment		Emerging Additional document object models
Implications and Dependencies <ul style="list-style-type: none"> • OSHPD's Data Warehouse strategy has driven some needs and decisions in this area. 		

Computing Infrastructure - Platforms & O/S, Desktop/Client

12.1

Current	2 Years	5 Years
Baseline Environment Client PC/OS Windows XP Pro SP1	Tactical Deployment <ul style="list-style-type: none">• <u>Client Machines</u>: Continue buying systems with a current Windows Pro license• Market watch Longhorn and emerging open source desktop OS/thin clients.• Adhere to State Consolidation Efforts	Strategic Direction <ul style="list-style-type: none">• <u>Client PC's and Laptops</u>: Market watch emerging operating systems, including Microsoft and open source desktop/thin clients.• Market Watch Open Source Alternatives• Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement Windows 2000	Mainstream Windows XP Pro Sp1	
Containment		Emerging Longhorn/Linux Desktop/Thin Client
Implications and Dependencies		

Computing Infrastructure - Platforms & O/S, Tablets and PDA's

12.2

Current	2 Years	5 Years
Baseline Environment <u>Tablet PC</u> Windows XP Tablet <u>PDA</u> Palm and other brands - Palm OS. HP/Dell Pocket PC - Windows CE <u>PDA-Phone</u> TRIO - Palm OS Pocket PC - Windows CE Smart Phone - Windows CE	Tactical Deployment <ul style="list-style-type: none"> • <u>PDA</u>: Market watch PDA OS evolution, J2ME and Windows Compact .NET • <u>PDA-Phone</u>: Deploy in specific areas based on needs • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>PDA</u>: Market watch PDA OS evolution, J2ME and Windows Compact .NET • <u>Tablets</u>: Evaluate emerging technologies • <u>PDA-Phones</u>: Evaluate emerging technologies • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Palm OS-based PDA's, HP Tablet PC, HP PDA	
Containment TREO PDA-phone		Emerging Additional PC and combined form-factor devices, Palm and Windows-based
Implications and Dependencies		

Computing Infrastructure - Server O/S, LAN Servers

13

Current	2 Years	5 Years
Baseline Environment Novell Netware 6.5 Sp2 MS Windows 2003 SUSE LINUX Enterprise 9.0 Redhat LINUX 9/FC IBM OS 390 (DB2) VMWare	Tactical Deployment <ul style="list-style-type: none">• Maintain current environment and evaluate emerging technologies• Evaluate Migration from OS 390• Adhere to State Consolidation Efforts	Strategic Direction <ul style="list-style-type: none">• Market watch Current Baseline, Tactical, and Emerging Technologies• Market Watch Open Source Alternatives
Retirement	Mainstream Novell Netware 6.5, Windows 2003, SUSE LINUX 9, Redhat Linux, & VMWare	
Containment		Emerging 64-bit OS and Processor technology
Implications and Dependencies		

Computing Infrastructure - Server O/S, Web and App Servers

14

Current	2 Years	5 Years
Baseline Environment <u>Web Server</u> Microsoft IIS on Windows 2K/2003 Server, Dell/HP <u>App Server</u> MS Windows 2000/2003 Server, Dell/HP <u>Term Services:</u> Limited use for admin purposes	Tactical Deployment <ul style="list-style-type: none"> • <u>Web:</u> Longhorn server on Dell/HP • <u>App Server:</u> Longhorn server on Dell/HP • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Web:</u> Microsoft Indigo Web server, evaluate Linux • <u>App Server:</u> Microsoft server O/S, evaluate Linux • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Windows 2000/2003, Dell/HP, Linux	
Containment		Emerging Blade servers, next Gen Windows server OS, Intel-IPF, Linux
Implications and Dependencies <ul style="list-style-type: none"> • Windows Terminal Services typically used for sys admin purposes only. Additional terminal services may be required for certain types of c/s apps running at HHSDC, from low-bandwidth locations. 		

Computing Infrastructure - Server O/S, Database Server

15

Current	2 Years	5 Years
Baseline Environment <u>Database</u> Windows 2000/2003 Advance/Server (hosting MS SQL-Server or Oracle RDBMS)	Tactical Deployment <ul style="list-style-type: none"> • Evaluate Loghorn 32/64 bit version • Evaluate moving ORACLE on Linux • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • Market watch Current Baseline, Tactical, and Emerging Technologies • Market Watch Open Source Alternatives
Retirement	Mainstream Windows 2000/2003 Server O/S	
Containment Windows 2000		Emerging Blade servers, next Gen Windows server OS, Intel-IPF, Linux
Implications and Dependencies		

Computing Infrastructure - Server O/S, Specialized Server

16

Current	2 Years	5 Years
Baseline Environment <u>Mainframe</u> IBM OS z/OS (DB2) <u>GIS</u> Microsoft Windows 2000 Server running ESRI, on Dell platform	Tactical Deployment <ul style="list-style-type: none"> • <u>GIS</u>: Microsoft Server OS platform, evaluate Windows Server 2003 • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>GIS</u>: ESRI Suite of GIS products on Microsoft OS platform; Market watch, evaluate Microsoft OS functionality and Intel scalability vs. Unix and Linux platforms • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Win2000 Server O/S (GIS), IBM OS z/OS server	
Containment		Emerging Blade servers, next Gen Windows server OS, Intel-IPF, Linux
Implications and Dependencies <ul style="list-style-type: none"> • Still have 2 m/f applications to be phased out: Annual Financials and Activity System 		

Computing Infrastructure - DBMS Engine, OLTP and GIS

17.1

Current	2 Years	5 Years
Baseline Environment <u>OLTP & Client/Server</u> DB2 v7 MS SQL Server 2000 ORACLE 9i <u>Data Warehouse</u> ORACLE 9i <u>GIS</u> MS SQL Server 2000	Tactical Deployment <ul style="list-style-type: none"> • <u>OLTP</u>: Evaluate SQL Server 2005(Yukon) and Oracle 10g; move when ready if appropriate • Evaluate ORACLE 10g • Adhere to State Consolidation Efforts • DB2 v8 – Supported by HHSDC • Evaluate Open Source Alternatives (MySQL/PostgreSQL) 	Strategic Direction <ul style="list-style-type: none"> • <u>OLTP</u>: Watch MS SQL Server centric Database • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement ORACLE 8i	Mainstream SQL Server 2000, Oracle9i	
Containment DB2 v7		Emerging MS Yukon, My SQL
Implications and Dependencies		

Computing Infrastructure - DBMS Engine, Desktop

17.2

Current	2 Years	5 Years
Baseline Environment <u>Desktop</u> MS Access2000 Jet Engine MS Access 2003 Jet Engine	Tactical Deployment <ul style="list-style-type: none"> • Evaluate using SQL Server for Desktop (MSDE) • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Desktop</u>: Utilize desktop db for appropriate business use; consider impact of removal from standard desktop image as a TCO reduction step. • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement Access97	Mainstream Access 2003 Jet Engine	
Containment Access 2000 Jet Engine		Emerging
Implications and Dependencies <ul style="list-style-type: none"> • Access on the desktop is a known driver of higher desktop TCO; should consider providing Access upon request based on business need. 		

Computing Infrastructure - DBMS Utilities and Tools

18

Current	2 Years	5 Years
Baseline Environment <u>DB Administration</u> Quest TOAD Oracle Enterprise Manager MS Management Console XML Spy	Tactical Deployment <ul style="list-style-type: none"> • <u>DB Admin:</u> Use current tools, including TOAD, OEM and MS Mgt Console; evaluate needs for integrated DBMS management tool suite • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>DB Admin:</u> Track market for integrated DBMS management tool suite, MS SQL Server and Oracle compliant • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Oracle Enterprise Manager, MS Management Console, TOAD	
Containment		Emerging
Implications and Dependencies		

Computing Infrastructure - Data Warehouse Infrastructure

19

Current	2 Years	5 Years
Baseline Environment <u>ETL</u> Informatica SAS for PC <u>Data Warehouse DBMS</u> Oracle 9i <u>Data Mart DBMS</u> MS SQL Server MS Access 2003	Tactical Deployment <ul style="list-style-type: none"> • <u>ETL</u>: Informatica • <u>Data Warehouse</u>: Oracle 9i; evaluate Oracle 10g for DW scalability, LINUX OS • <u>Data Marts</u>: Primarily SQL Server; evaluate Oracle for OLAP to support advanced data mining • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>ETL</u>: Market watch leading ETL vendors; potential merge with DBMS or app servers • <u>Data Warehouse</u>: Oracle; Market watch DW leaders • <u>Data Marts</u>: Primarily SQL Server; evaluate Oracle for OLAP and other data mart DBMS • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement Access 2000 (for DM), Oracl 8i	Mainstream Informatica (ETL), Oracle 9i (DW), SQL Server (DM)	
Containment SAS (as an ETL tool)		Emerging Grid DBMS engines
Implications and Dependencies <ul style="list-style-type: none"> • SAS is currently used for some limited data transformation purposes; should be kept limited, use SAS for advanced analytics. • Access should not be used for implementing data marts. 		

Computing Infrastructure - Business Intelligence Tools

20

Current	2 Years	5 Years
Baseline Environment <u>Basic Queries/Reporting</u> Crystal Reports 7/8/9 SAS for PC Access 2003 Excel 2003 <u>BI Tool</u> Business Objects <u>Advanced Analytics</u> SAS Monarch (CAL-Stars)	Tactical Deployment <ul style="list-style-type: none"> • <u>BI: Business Objects</u>; evaluate BI portals (web based) and EBIS suites • <u>Advanced Analytics</u>: SAS for PC • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Basic Queries/Reports</u>: Market watch leaders, assess improved capabilities and/or BI portal integration • <u>BI</u>: Market watch leaders • <u>Advanced Analytics</u>: Market watch leaders • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement Crystal Report 7	Mainstream Crystal Reports, SAS, MS Tools (Access, Excel), Business Objects	
Containment Monarch, Crystal Reports below v. 9		Emerging EBIS suites, BI portals
Implications and Dependencies <ul style="list-style-type: none"> • Business Objects recently acquired Crystal Decisions; watch for product consolidations. • Monarch for the PC is used as a front-end data mining tool by the Accounting group, to go against data stored in CAL-Stars 		

Computing Infrastructure - Enterprise Web and Portal Technologies

21

Current	2 Years	5 Years
Baseline Environment <u>Web Server</u> Microsoft IIS, Apache <u>Search Engine</u> MS Index Services	Tactical Deployment <ul style="list-style-type: none"> • <u>Web</u>: MS IIS, Apache • <u>Portal Srvr</u>: Evaluate MS SharePoint Portal and other Windows-centric portal products • <u>Search</u>: Evaluate search products in conjunction with Portal evaluation. • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Web</u>: Market watch; MS IIS and Apache • <u>Portal Srvr</u>: Market watch • <u>Search</u>: Market watch • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream MS IIS (web), MS Index Services, Apache	
Containment		Emerging .NET-centric portal platform
Implications and Dependencies <ul style="list-style-type: none"> • Portal platforms generally come with some form of content management and personalization. Search is typically provided by a partnering vendor, i.e. Google. 		

Network Infrastructure - Network OS and Directory Services

22.1

Current	2 Years	5 Years
Baseline Environment <u>Directory Service</u> Novell E-Directory 8.7 MS Active Directory	Tactical Deployment <ul style="list-style-type: none">• <u>Directories</u>: Primary Novell E-Directory with MS Active Directory• Adhere to State Consolidation Efforts	Strategic Direction <ul style="list-style-type: none">• <u>Directories</u>: Vendor watch Novell, LINUX and MS directory services; Evaluate emerging technologies• Market Watch Open Source Alternatives• Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Novell E-Directory, Active Directory	
Containment		Emerging E-Directory 9, LDAP X.500
Implications and Dependencies		

Network Infrastructure - Basic Network Host Services

22.2

Current	2 Years	5 Years
Baseline Environment <u>Domain Naming</u> MS WINS server MS DNS server <u>IP Addressing</u> Microsoft DHCP Server <u>Print Services</u> LDP Printing <u>Proxy Services</u> Microsoft ISA <u>SMTP/IMAP Gateway</u> Novell GroupWise SMTP svc Symantec SMTP Scanner	Tactical Deployment <ul style="list-style-type: none"> • <u>Domain Naming</u>: Microsoft DNS and WINS • <u>IP Address</u>: Microsoft DHCP services • <u>Print Services</u> : LDP Printing using Print appliances • <u>Proxy Services</u>: MS ISA • <u>SMTP/IMAP Gateway</u>: GroupWise SMTP and IMAP services • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Microsoft ISA, WINS, DNS, DHCP, LDP printing	
Containment		Emerging Browser-based emulation plug-ins
Implications and Dependencies <ul style="list-style-type: none"> • WINS is still required for certain types of name resolution; cannot yet be phased out. 		

Network Infrastructure - Other Network Services

22.3

Current	2 Years	5 Years
Baseline Environment	Tactical Deployment	Strategic Direction
Retirement	Mainstream	
Containment		Emerging
Implications and Dependencies		

Network Infrastructure - Enterprise Management Framework

23

Current	2 Years	5 Years
Baseline Environment	Tactical Deployment	Strategic Direction
Retirement	Mainstream	
Containment		Emerging
Implications and Dependencies		

Network Infrastructure - Network Elements, Desktop and Systems Management

24.1

Current	2 Years	5 Years
Baseline Environment	Tactical Deployment	Strategic Direction
Retirement	Mainstream	
Containment		Emerging
Implications and Dependencies		

Network Infrastructure - Network Analysis and Performance Management

24.2

Current	2 Years	5 Years
Baseline Environment <u>Network Analysis</u> IPMon*, MRTG, Kismet, Snort <u>Packet Analysis</u> Ethereal, Windump, TDI Mon, TCPView, AirSnort, tcpDump <u>Performance Analysis</u> PerfMon, Oracle Enterprise Manager, MS ACT,	Tactical Deployment <ul style="list-style-type: none"> • <u>Look at other open source alternatives</u> • <u>Network Analysis</u>: MRTG and evaluate network monitoring tool • <u>Packet Analysis</u>: Evaluate emerging products • <u>Performance</u>: Use available tools, e.g. PerfMon; evaluate with broader analysis tools that integrate with enterprise framework. • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Network Analysis</u>: Market watch advanced integrated analysis tools • <u>Packet Analysis</u>: Market watch sniffer and packet inspection products • <u>Performance</u>: Market watch advanced integrated performance management suites. • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream PerfMon, Oracle Enterprise manager	
Containment IPMon		Emerging
Implications and Dependencies <ul style="list-style-type: none"> • *IPMon currently used as network TCP/IP diagnosis tool; functions may be replaced by using more robust network mgt tool. 		

Network Infrastructure - Authentication, Accounting and Authorization

25.1

Current	2 Years	5 Years
Baseline Environment <u>Application Authorization</u> RACF (mainframe) SQL Server authorization Oracle dbms authorization Directory integrated DB authorization SSL Certificates RADIUS for mobile information access TACACS+ for Network devices	Tactical Deployment <ul style="list-style-type: none"> • <u>Application Authorization:</u> Evaluate use of directory services and/or meta directory services for all application, database security and synchronization. Evaluate two factor authentication • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Application Authorization:</u> Advanced directory repository and/or user provisioning and identity management • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream Windows Server/AD, SQL Server, Oracle, RSA SecureID	
Containment RACF (m/f)		Emerging Identity management, user provisioning
Implications and Dependencies		

Network Infrastructure - Encryption Standards

25.2

Current	2 Years	5 Years
Baseline Environment <u>Encryption/PKI</u> 3DES (firewall) AES 128-bit RSA 128-bit Oracle Advanced Security SSL 128-bit (browser) <u>Encryption Software</u> GuardianEdge	Tactical Deployment <ul style="list-style-type: none">• <u>Encryption</u>: Evaluate emerging encryption technologies• Adhere to State Consolidation Efforts	Strategic Direction <ul style="list-style-type: none">• <u>Encryption</u>: Market watch• Market Watch Open Source Alternatives• Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement	Mainstream 3DES, AES, Oracle Adv Security, SSL 128-bit	
Containment		Emerging built-in platform security, network security platforms
Implications and Dependencies		

Network Infrastructure - Security Devices and Anti-virus

26.1

Current	2 Years	5 Years
Baseline Environment <u>Firewall</u> Cisco PIX <u>Desktop Virus Scan</u> Symantec Corporate <u>Email Scanning</u> Symantec SMTP for gateways	Tactical Deployment <u>Firewall</u> : Use layered Cisco PIX firewall combined with proxy services for content filtering <u>Desktop Virus</u> : Continue with Symantec products, evaluate and select new desktop AV solution <u>Email Scan</u> : McAfee, evaluate and select product along with other virus scan and anti-spam scanning solutions Adhere to State Consolidation Efforts	Strategic Direction <ul style="list-style-type: none"> • Market Watch Open Source Alternatives • Market watch Current Baseline, Tactical, and Emerging Technologies
Retirement Border Manager	Mainstream Cisco & Symantec	
Containment		Emerging network security platforms, deep packet inspection fw
Implications and Dependencies		

Network Infrastructure - Mobile Access

26.2

Current	2 Years	5 Years
Baseline Environment Mobile Access Cisco RAS Device Cisco VPN concentrator	Tactical Deployment <u>Mobile Access:</u> Evaluate PCS/G3/WiFi/WiMAX/Broadband technologies for mobile workforce Evaluate SSL or similar VPN technology utilizing two factor authentication Adhere to State Consolidation Efforts	Strategic Direction <ul style="list-style-type: none"> • Market watch Current Baseline, Tactical, and Emerging Technologies • Market Watch Open Source Alternatives
Retirement	Mainstream	
Containment		Emerging
Implications and Dependencies		

Network Infrastructure - Security, Network Log Analysis

26.3

Current	2 Years	5 Years
Baseline Environment <u>Web Site Reports</u> SurfControl <u>Web Traffic</u> WebTrends <u>Logging</u> syslog server	Tactical Deployment <u>Site Reports:</u> SurfControl, re-evaluate tools and products <u>Web Traffic:</u> WebTrends <u>Logging:</u> Maintain syslog systems. Adhere to State Consolidation Efforts	Strategic Direction <ul style="list-style-type: none">• Market watch Current Baseline, Tactical, and Emerging Technologies• Market Watch Open Source Alternatives
Retirement	Mainstream	
Containment		Emerging
Implications and Dependencies		

Common Services - Email and Messaging

27.1

Current	2 Years	5 Years
Baseline Environment <u>Email Client</u> Novell GroupWise 6.5 sp1 <u>Messaging</u> Novell GroupWise messaging platform, mail and calendar/schedule API's <u>Instant Messenger</u> None	Tactical Deployment <ul style="list-style-type: none"> • <u>Email</u>: Evaluate MS Outlook • <u>Messaging</u>: Evaluate MS Exchange • <u>IM</u>: Evaluate needs for IM technologies in real-time collaboration • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • Market watch Current Baseline, Tactical, and Emerging Technologies • <u>IM</u>: Evaluate needs for IM technologies in real-time collaboration • Market Watch Open Source Alternatives
Retirement	Mainstream Groupwise	
Containment		Emerging
Implications and Dependencies		

Common Services - Workgroup Collaboration Technologies

27.2

Current	2 Years	5 Years
Baseline Environment <u>Schedule/Calendar</u> GroupWise 6.5 <u>On-line Meeting</u> None <u>PC Video Conferencing</u> Polycom	Tactical Deployment <ul style="list-style-type: none"> • <u>Schedule/Calendar</u>: Evaluate gateway for Exchange • <u>On-line Meeting</u>: Evaluate business needs for these functions • <u>PC Video Conferencing</u>: Evaluate expanded use of video conferencing. • <u>VoIP</u>: Evaluate systems to replace current phone system • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • Market watch Current Baseline, Tactical, and Emerging Technologies ■ Market Watch Open Source Alternatives
Retirement	Mainstream Groupwise, Polycom, Asterisk, Cisco	
Containment		Emerging VoIP, SES, Portals
Implications and Dependencies		

Common Services - Project/Team Collaboration

27.3

Current	2 Years	5 Years
Baseline Environment <u>Project Management</u> MS Project	Tactical Deployment <ul style="list-style-type: none"> • <u>Project Management</u>: MS Project, evaluate needs for team-based Project Central and/or SharePoint Team Services for enhanced project collaboration • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • <u>Project Management</u>: IT Portfolio Management of projects will drive needs for enhanced PM knowledge and tools • Market watch Current Baseline, Tactical, and Emerging Technologies • Market Watch Open Source Alternatives
Retirement	Mainstream MS Project	
Containment		Emerging
Implications and Dependencies		

Common Services - Office Automation

28.1

Current	2 Years	5 Years
Baseline Environment <u>Office Suite</u> MS Office 2003 <u>Standalone Word Processing</u> Corel Word Perfect <u>Basic Drawing</u> MS Visio <u>Advanced Graphics</u> Adobe Illustrator	Tactical Deployment <u>Office Suite</u> : Office 2003 evaluate Open source office suites <u>Standalone WP</u> : WordPerfect only as needed <u>Basic Drawing</u> : MS Visio <u>Advanced Graphics</u> : Adobe tools suite Adhere to State Consolidation Efforts	Strategic Direction Market watch Current Baseline, Tactical, and Emerging Technologies Market Watch Open Source Alternatives
Retirement	Mainstream Office 2003, Visio, Adobe Suite	
Containment WordPerfect		Emerging SES, XML data file formats, Open Office suite
Implications and Dependencies		

Common Services - Web Content and Publishing

28.2

Current	2 Years	5 Years
Baseline Environment <u>Web Content Dev</u> MS FrontPage Adobe Photoshop Macromedia Dreamweaver <u>Publishing</u> MS Publisher Adobe Pagemaker Adobe InDesign	Tactical Deployment Evaluate emerging technologies Adhere to State Consolidation Efforts	Strategic Direction Market watch Current Baseline, Tactical, and Emerging Technologies Market Watch Open Source Alternatives
Retirement	Mainstream MS FrontPage, Macromedia Dreamweaver, Adobe Photoshop	
Containment Publisher		Emerging
Implications and Dependencies		

Common Services - Personal Productivity

28.3

Current	2 Years	5 Years
Baseline Environment <u>PDA Synch</u> Intellisync ActiveSync Documents-to-Go <u>File Utilities</u> Winzip 8 <u>E-Forms</u> Adobe Acrobat	Tactical Deployment <ul style="list-style-type: none"> • <u>PDA Synch</u>: Existing tools, mostly come with the device • <u>File Utilities</u>: Existing tools, used appropriately; evaluate ftp browser plug-ins • <u>E-Forms</u>: Adobe Acrobat and .pdf file formats • Adhere to State Consolidation Efforts 	Strategic Direction <ul style="list-style-type: none"> • Market watch Current Baseline, Tactical, and Emerging Technologies • <u>File Utilities</u>: Use appropriately • <u>E-Forms</u>: Adobe Acrobat • Market Watch Open Source Alternatives
Retirement RodePC (data entry)	Mainstream Intellisync, ActiveSync, Documents-to-Go, WinZip, Adobe Acrobat	
Containment WS FTP		Emerging
Implications and Dependencies		